

# **Water Management Planning in Kentucky**

## **Introduction**

In 1990, [KRS 151:114](#) established that the Natural Resources and Environmental Protection Cabinet would "administer a program for the purpose of developing long range water supply plans for each county and its municipalities and public water systems or for a region composed of more than one (1) county. The plans to be developed shall include an assessment of the existing public and private water resources, both surface and groundwater, of the study area, an examination of present water use in the area, projection of future water requirements, and a determination of possible alternative approaches that can be taken in order to meet future water supply needs." [401 KAR 4:220](#) subsequently explicated the scope, substance and structure of the long range water supply plans.

In 2000, [KRS 151:601](#) directed that county or planning-area water management councils be established, to supersede earlier water supply planning councils. [KRS 151:603](#) charged the management councils with developing and implementing plans for the provision of safe and reliable water and wastewater treatment to un-served and under-served areas of the Commonwealth. Fifteen planning areas have been established, corresponding to Area Development District boundaries. With the assistance of the ADD water coordinator, planning councils for each area have begun their activities. Water management areas within, or in some cases extending beyond, each planning area have been identified by the councils. Water management areas define those regions where water and wastewater treatment service may be most effectively addressed through coordinated development--shared resources, consolidation of facilities, mergers, etc. A planning area may include several water management areas; a county might be a water management area.

Water management plans developed by area councils will be consistent with existing water supply plans, will examine regional approaches to development, and will also include all information needed to address issues by the regional approach.

## **Water Management Planning Process**

The [Water Resource Information System \(WRIS\)](#), developed in recent years through the cooperative efforts of water systems and local, regional, and state agencies, is maintained by the Kentucky Infrastructure Authority and provides much of the information needed in the planning process. The WRIS includes historical data from water supply and strategic development plans, a geographic information system for treatment facilities, water lines, water sources, storage facilities, and sewer lines, ground water resource information, and infrastructure and planning maps. All the information in the WRIS is accessible in digital format via the internet.

### **WRIS Contributors**

- Kentucky Infrastructure Authority
- Kentucky Division of Water - Drinking Water Branch
- Kentucky Division of Water - Groundwater Branch
- Kentucky Division of Water - Water Resources Branch
- Kentucky Division of Water - Facilities Construction Branch
- Kentucky Natural Resources Information System
- Department for Local Governments
- Public Service Commission
- Kentucky Geological Survey
- Kentucky Rural Water Association
- Barren River Area Development District
- Big Sandy Area Development District
- Bluegrass Area Development District
- Buffalo Trace Area Development District
- Cumberland Valley Area Development District
- FIVCO Area Development District
- Gateway Area Development District
- Green River Area Development District
- Kentucky River Area Development District
- KIPDA Area Development District
- Lake Cumberland Area Development District
- Lincoln Trail Area Development District
- Northern Kentucky Area Development District
- Pennyrile Area Development District
- Purchase Area Development District
- Over 400 water systems
- And many others

The process of planning is illustrated in [Appendix A - Water Management Planning](#). Information from the WRIS is provided to the water management councils with the help of the ADD water coordinator. The water coordinator also facilitates the flow of updated information back to the WRIS from the planning councils.

Supported by the WRIS, the water management councils identify local needs for water supply, treatment, distribution, wastewater treatment, private domestic supplies, and on-site wastewater treatment. Potential projects are identified by the council to address needs related to source development, source protection, treatment capacity, water line extension, line upgrades, storage, un-served areas, resource sharing, consolidation, merger, etc. Potential projects for the planning area are prioritized and forwarded to the Kentucky Infrastructure Authority. The Kentucky Infrastructure Authority compiles the 15 planning area plans into one statewide plan. Priority funding is established by the KIA as part of the statewide plan.

### **Water Management Plan**

The water coordinator for each planning area is responsible for assembling the results of the council's planning activities into a water management plan. The contents of the management plans will change as new projects are developed and as new issues arise. The plans will be updated annually. KRS 151.607 mandates that revised plans shall be completed by July 1 of each year. Due to time constraints, the full scope of the plans was not implemented by July 1, 2001. In this initial year, each plan consists of an identification by the councils of priority projects, that is, projects needed in the short term which could be implemented during the period 2001-2003.

An outline of the full plan is given below. The structure of the plan was developed through the combined efforts of the WRIS contributing agencies. Sections I-XIII address issues required in the water supply planning process described in [401 KAR 4:220](#). Sections XIV-XXII address additional planning needs entailed in KRS [151.601-607](#). Sections XXIII-XXIV are common to both.

Development of data on source water protection, section VIII, is still in process at the Division of Water. This information will be incorporated into the plans as it is completed. Likewise, issues related to technical, managerial, and financial capacity of public systems are

still under discussion and development. Corresponding sections of the water management plans will be defined in more detail as the process evolves.

Water management plans will be incorporated into the WRIS. As such, they will be available via the internet.

**I. DESCRIPTION OF THE PLANNING UNIT**

- A. Description & Determination of the Planning Unit.....ADD**
- B. Water Management Areas..... ADD, WRIS**  
Water Planning Unit Map -
- C. Current Water Service Areas..... ADD, WRIS**  
Water Service Area Map -
- D. Proposed Water Service Areas ..... ADD, WRIS**  
Water Service Area Map -
- E. Future Water Service Areas ..... ADD, WRIS**  
Water Service Area Map -
- F. Wastewater Treatment Management Areas ..... ADD, WRIS**  
Wastewater Planning Unit Map -
- G. Current Wastewater Treatment Areas..... ADD, WRIS**  
Wastewater Treatment Areas Map -
- H. Proposed Wastewater Treatment Areas ..... ADD, WRIS**  
Wastewater Treatment Areas Map -
- I. Future Wastewater Treatment Areas ..... ADD, WRIS**  
Wastewater Treatment Areas Map –

**II. PLANNING COUNCIL**

- A. Planning Council members .....ADD**
- B. Planning representatives and aides.....ADD**
- C. Description of planning representation selection.....ADD**
- D. County Advisory Group(s).....ADD**

**III. COUNCIL MEETINGS**

- A. Meeting dates, Public notices, Newspapers .....ADD**

#### IV. COUNCIL OBJECTIVES AND WORK PLANS

- A. Planning objectives .....ADD
- B. Planning process to set objectives .....ADD
- C. Conflicts or lack of consensus .....ADD
- D. Conflicts with existing or proposed plans of local entities ....ADD
- E. Existing water or water-related plans .....ADD
- F. Work Plan: Objectives and Deadlines.....ADD

#### V. WATER USE

- A. Public Water Systems (listing)..... WRIS
  - 1. Community .....WRIS
  - 2. Non-Community.....WRIS
- B. Private Domestic Water Systems ..... WRIS
- C. Current and Projected Population.....WRIS, DOW, KGS??  
Estimated population and public water service in the planning area.
- D. Current Water Use
  - 1. Water Suppliers .....WRIS
  - 2. Water Distributors .....WRIS
  - 3. Water losses.....ADD, PSC, WRIS
  - 4. Other permitted water withdrawers .....DOW
  - 5. Agricultural Water Use .....DOW
  - 6. Permit-exempt water withdrawers .....DOW, ADD
  - 7. Chart Disaggregated Water Use; Supplier by Source .....DOW, ADD
  - 8. Existing or potential water use conflicts .....ADD
- E. Projected Water Use
  - 1. Demand Forecast .....ADD, DOW
  - 2. Charts: Disaggregated projected demands.....ADD, DOW
  - 3. Forecasting methodology.....ADD, DOW

#### VI. WATER SOURCES

- A. Map of all sources ..... WRIS

B.	Surface Sources/Springs.....	WRIS, DOW
C.	Groundwater Sources .....	WRIS, DOW
D.	Other Sources .....	DOW
E.	Source water assessments .....	ADD
1.	Stream sources.....	DOW
2.	Reservoir sources .....	DOW
3.	Well sources.....	DOW, WRIS
4.	Spring sources.....	DOW, WRIS
5.	Source Availability Table .....	DOW
6.	7Q10, 7Q20 .....	DOW
A.	Water Use Constraints .....	DOW, ADD
VII. WATER SUPPLY ADEQUACY		
A.	Summary of Water Systems in the Region .....	ADD
B.	Drought susceptibility of water systems.....	ADD
VIII. SOURCE WATER PROTECTION		
A.	Delineation.....	DOW, WRIS
B.	Watershed Protection Areas .....	DOW, WRIS
C.	Reservoir Protection Areas .....	DOW, WRIS
D.	Wellhead Protection Areas .....	DOW, WRIS
E.	Recharge Protection Areas .....	DOW, WRIS
F.	Water Supply Risks	
1.	Potential Contamination Sources .....	DOW
2.	Soils and Geology .....	WRIS
3.	Susceptibility Analysis .....	?????
4.	Existing Local Regulatory Protection Measures.....	ADD
5.	Recommended Protection Measures .....	ADD
6.	Security of Access .....	ADD
IX. WATER RESOURCES INVENTORY		

- A. Soils Map ..... WRIS
- B. Gaging Stations ..... WRIS, KGS
- C. Wetlands .....WRIS, OIS
- D. Hydric soils.....WRIS, OIS
- E. Outstanding Resource Waters.....DOW
- F. Generalized land use.....WRIS, OIS
- G. Mine works..... WRIS, KGS
- H. Geology ..... WRIS, KGS
- I. Cultural/Archeological areas.....????
- J. Ground-water areas..... DOW, WRIS, KGS
- K. Recreational water resources .....ADD, DOW
- L. Streamflow data .....DOW
- M. Precipitation data.....DOW
- N. State and Federal Requirements .....DOW
- O. High-yield Wells ..... KGS, WRIS
- P. Water quality.....?????
- Q. Ground Water .....DOW, KGS
- R. Dam and Reservoir Ownership..... DOW, WRIS
- S. Sources of Water Resources Data .....DOW
- X. WATER SUPPLY ALTERNATIVES
  - A. Sources ..... ADD, WRIS
  - B. Conservation/Demand Reduction .....ADD
  - C. Loss Reduction .....ADD
  - D. Regionalization ..... ADD, WRIS
  - E. Interconnections..... ADD, WRIS

**XI. PRIMARY WATER SUPPLY ALTERNATIVE**

- A. Description of preferred alternative .....ADD
- B. Decision-making process .....ADD
- C. Summary of issues and discussions .....ADD
- D. Public notices.....ADD
- E. Required Capital Improvements ..... ADD, WRIS

**XII. EMERGENCY PLANS**

- A. Water Shortage Response Plan .....ADD
- B. Supply Contamination Response Plan .....ADD
- C. Alternative Water Sources..... ADD, DOW, WRIS

**XIII. WATER TREATMENT AND DISTRIBUTION ASSESSMENT**

- Planning Unit Summary .....ADD
- County Sections .....ADD
- A. Existing facilities and infrastructure ..... WRIS
- B. Treatment capacity/adequacy existing/future..... WRIS
- C. Distribution System..... WRIS
- D. Storage capacity existing/future..... WRIS
- E. Intakes ..... WRIS
- F. Pumps ..... WRIS
- G. Meters..... WRIS
- H. Unserved & Underserved Areas+ Service Area Expansions WRIS
- I. Private Domestic Systems..... WRIS
- J. Non-Community Systems..... WRIS

**XIV. TECHNICAL CAPACITY OF PUBLIC WATER SYSTEMS**

Service Area Summary .....	ADD
A. Adequate water existing/future needs? .....	KIA, DOW, ADD
B. Consistent high-quality water? .....	KIA, DOW, ADD
C. Adequate Pressure? .....	KIA, DOW, ADD
D. Unaccounted for water not excessive? .....	KIA, DOW, ADD
E. Emergency sources? .....	KIA, DOW, ADD
<b>XV. MANAGERIAL CAPACITY OF PUBLIC WATER SYSTEMS</b>	
A. Management & Business Plans .....	KIA, ADD
B. Compliance Record .....	KIA, ADD
C. Customer complaints & followup .....	KIA, ADD
D. Board activities .....	KIA, ADD
E. Staffing .....	KIA, ADD
F. Costs of production.....	KIA, ADD
G. Water loss audits .....	KIA, ADD
H. System Maintenance .....	KIA, ADD
<b>XVI. FINANCIAL CAPACITY OF PUBLIC WATER SYSTEMS</b>	
A. Uniform System of Accounts .....	KIA, PSC, ADD
B. Cost-based Rates.....	KIA, PSC, ADD
1. Reasonable Rates? .....	KIA, ADD
2. Revenue sufficient for operations, debt service, reserves? .....	KIA, ADD
3. Delinquent accounts .....	KIA, ADD
<b>XVII. WATER SUPPLY ISSUES/PROJECTS</b>	
A. Project Listing .....	WRIS, ADD
B. Planning Area Supply or Infrastructure Project Issues.....	ADD
<b>XVIII. WASTEWATER TREATMENT</b>	

<b>A.</b>	<b>Municipal Wastewater Treatment Systems .....</b>	<b>WRIS</b>
1.	Treatment/discharge .....	WRIS, ADD
2.	Collection .....	WRIS, ADD
3.	Inflow/Infiltration.....	WRIS, ADD
4.	Combined sewers .....	WRIS, ADD
<b>B.</b>	<b>Package plants .....</b>	<b>DOW, ADD, WRIS</b>
<b>C.</b>	<b>Collective Onsite Wastewater Treatment Systems .....</b>	<b>CHS, DOW</b>
<b>D.</b>	<b>Individual Onsite Wastewater Treatment Systems .....</b>	<b>CHS, DOW</b>
<b>XIX.</b>	<b>TECHNICAL CAPACITY OF WASTEWATER TREATMENT SYSTEMS</b>	
	Service Area Summary .....	ADD
<b>A.</b>	<b>Adequate treatment existing/future needs? .....</b>	<b>KIA, DOW, ADD</b>
<b>B.</b>	<b>Consistent compliance? .....</b>	<b>KIA, DOW, ADD</b>
<b>C.</b>	<b>Combined sewers? .....</b>	<b>KIA, DOW, ADD</b>
<b>D.</b>	<b>Inflow/infiltration not excessive? .....</b>	<b>KIA, DOW, ADD</b>
<b>E.</b>	<b>Emergency plans? .....</b>	<b>KIA, DOW, ADD</b>
<b>XX.</b>	<b>MANAGERIAL CAPACITY OF WASTEWATER TREATMENT SYSTEMS</b>	
<b>A.</b>	<b>Management &amp; Business Plans .....</b>	<b>KIA, ADD</b>
<b>B.</b>	<b>Compliance Record .....</b>	<b>KIA, ADD</b>
<b>C.</b>	<b>Customer complaints &amp; followup .....</b>	<b>KIA, ADD</b>
<b>D.</b>	<b>Board activities .....</b>	<b>KIA, ADD</b>
<b>E.</b>	<b>Staffing .....</b>	<b>KIA, ADD</b>
<b>F.</b>	<b>Costs of treatment .....</b>	<b>KIA, ADD</b>
<b>G.</b>	<b>Inflow/infiltration audits .....</b>	<b>KIA, ADD</b>
<b>H.</b>	<b>System Maintenance .....</b>	<b>KIA, ADD</b>
<b>XXI.</b>	<b>FINANCIAL CAPACITY OF WASTEWATER TREATMENT SYSTEMS</b>	

A.	Uniform System of Accounts .....	KIA, PSC
B.	Cost-based Rates.....	KIA, PSC, ADD
1.	Reasonable Rates? .....	KIA, PSC, ADD
2.	Revenue sufficient for operations, debt service, reserves?.....	KIA, PSC, ADD
3.	Delinquent accounts .....	KIA, PSC, ADD
 XXII. WASTEWATER TREATMENT ISSUES/PROJECTS		
A.	Project Listing .....	WRIS, ADD
B.	Planning Area Infrastructure Project Issues .....	ADD, WRIS
 XXIII. IMPLEMENTATION PLAN		
A.	Future Activities .....	ADD
B.	Project Prioritization.....	ADD
C.	General conclusions .....	ADD
D.	General recommendations .....	ADD
E.	Council Approval .....	ADD
XXIV. PLAN APPROVALS .....		ADD
APPENDIX A OBSTACLES TO THE PLANNING PROCESS .....		ADD
APPENDIX B MINUTES.....		ADD
APPENDIX C PLANNING PROCESS PAYMENT.....		ADD
REFERENCES.....		ADD

# WATER MANAGEMENT PLANNING

